NOAA Report Calls Flame Retardants a Major Concern in U.S. Coastal Ecosystems
National Ocean Service Making Waves special report
March 24, 2009

[**INTRODUCTION**]
This is a special report from Making Waves, the National Ocean Service's audio podcast for news and information about our oceans, coasts, and Great Lakes.

On March 24, NOAA scientists released a first-of-its-kind report that finds that *Polybrominated Diphenyl Ethers*, or PBDEs, are found in all U.S. coastal waters and the Great Lakes, with elevated levels near urban and industrial centers. PBDEs are man-made toxic chemicals used as flame retardants in a wide array of consumer products. A growing body of research points to evidence that exposure to these chemicals may cause detrimental health effects in animals, including humans.

The report is based on data from NOAA's Mussel Watch Program, which has been monitoring costal water contaminants for 24 years.

We recently sat down with Dr. Gunnar Lauenstein, program manager for NOAA's mussel watch program, to discuss the conclusions and implications of the survey.

Here is Dr. Lauenstein in his own words...

[**DR. GUNNAR LAUENSTEIN, MUSSEL WATCH PROGRAM MANAGER**]

"PBDEs, also known as Polybrominated Diphenyl Ethers, are flame retardants, and flame retardants are used throughout human products in the United States to ensure that the amount of fire risk is reduced. We find these flame retardants in upholstery, we find them in carpet padding, we find them in the casings of TV sets, and computers; and I think we also find them in office furniture. All of us at some point are exposed to flame retardants."

"The Mussel Watch Report on the flame retardants known as PBDEs shows us that these flame retardants are now found throughout all the areas of the U.S. we looked at—the coastal environments, the Great Lakes, and we've even found them in areas in Alaska—they've increased in the number of locations between the 1990s and 2004-2006. They're ubiquitous and they seem to be increasing."

"PBDEs can move into the environment through a number of ways. PBDEs can move into the environment from municipal waste; PBDEs can move into the environment from consumer goods as they're discarded; PBDEs and PCBs both can move up into the atmosphere, and this is one way that they are not only local from where their source is, but they can be broadcast throughout our world environment."

"I think what we're seeing from this PBDE report is, even though PBDEs were first looked at in the human environment, they are clearly now in the marine, the coastal, in

the marine environment in mussels and oysters. But mussels and oysters again are, in a sense, a canary in the coalmine for environmental contaminants."

"PBDEs seem to be highest in certain sites, specific sites in Southern California, or the Southern California Bite, and the Hudson Raritan Estuary—the Hudson Raritan Estuary is basically the area around the Statue of Liberty and New York."

"PBDEs are a consumer product, or they're associated with consumer products. So the more people you have, the potential the more PBDEs you're going to have because you're going to have more couches, more TV sets, more carpets, and as a result, you have greater source for PBDEs to move into the environment."

"One of the concerns about PBDEs is that PBDEs have been found in high concentrations in Americans, and Americans have the some of the highest PBDE concentrations of any people in the world. There's a concern from a human health perspective, and also a broader environmental perspective."

"PBDEs can be as much as 30 percent by weight in cushions found in things like couches. So when we sit on a couch, there could be a possible invisible cloud of PBDEs that we're breathing. From what I've read in the literature, infants or young toddlers frequently have the highest PBDE concentrations in the household and that may be because they crawl on the floor, there's PBDEs in the carpet padding, and then the infants put their fingers in their mouths. And there's also literature that suggests that PBDEs, because they're fat loving, or lipophilic, they can be transferred from mother's breast milk to their infants."

"I think we need to start becoming smarter about we're handling products that are laden with PBDEs. But I think what most municipalities do now with couches is they discard them in landfill. The problem with that is if the landfill ever leaks, then it's going to end up ultimately in the marine environment or the groundwater environment. If, on the other hand, that couch is incinerated, PBDEs could come out in stack gases, and wind up in the environment and be broadcast throughout the U.S."

"Recycling is a difficult thing when you're dealing with something like PBDEs. There has to be a national consciousness to the problem, and we think we need to take a different approach with the by-products of our consumer society."

“We in a sense have a cycle here: we have human consumerism and PBDEs, or flame retardants, being released in to the environment, moving into the marine environment, and from the marine environment possibly moving back into the human environment. This study gives decision makers and managers a tool to see the extent of PBDE contamination in our coastal environment and hopefully help in the decision process."

[**OUTRO**]
That was Dr. Gunnar Lauenstein, program manager for NOAA's mussel watch program.

You can find the full report online at http://ccma.nos.noaa.gov/PBDEreport...and check back at oceanservice.noaa.gov this Friday for an extended podcast story about this important new study.

This is Making Waves from NOAA's National Ocean Service.

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